CLAIMS

1. A method comprising

passing an electrical current through a thermistor to raise its temperature above the temperature of oil flowing in pulses past the thermistor,

measuring a change in temperature of the thermistor occurring with respect to one or more of the pulses,

determining a level of oil flow corresponding to the measured change in temperature, and

issuing a signal based on the determined flow level.

2. The method of claim 1 in which measuring the change in temperature comprises measuring a change in voltage across the thermistor over a period of time.

3. The method of claim 2 in which the period of time corresponds to different portions of at least one of the pulses.

4. The method of claim 2 in which the period of time begins at the start of one of the pulses and ends no later than the start of the next one of the pulses.

5. The method of claim 1 in which the thermistor is housed in a package having an area that yields an oil flow of 10 to 20 inches per second.

Sub C1

6. The method of claim 5 in which the area is in the range of 0.0005 to 0.002 square inches exposed to the flowing oil.

7. The method of claim 1 in which the oil is flowing in a 2-cycle marine engine.

8. The method of claim 7 in which a signal indicative of the timing of the pulses is received from an electronic control module of the engine.

9. The method of claim 7 in which the signal based on the determined flow level is sent to an electronic control module of the engine.

10. The method of claim 1 in which the rate of pulses is as high as 5Hz.

11. The method of claim 1 in which the rate of pulses is as low as one pulse per day.

Sub A1

12. Apparatus comprising

a coupling having (a) two open ends adapted for connection to upstream and downstream tubes of a pulsating oil circulation system of an engine and (b) a channel configured to direct the oil to flow past a thermistor connected to a sensing circuit,

the sensing circuit comprising elements connected to determine a change in a voltage across the thermistor and to compare the change to a threshold.

13. The apparatus of claim 12 in which the sensing circuit includes a sample-and-hold circuit connected to store a voltage across the thermistor.

14. The apparatus of claim 12 in which the sensing circuit includes a delay circuit connected to provide timing signals for the period over which the change in voltage is determined.

15. The apparatus of claim 12 in which the sensing circuit comprises a microcontroller that includes an analog-to-digital converter.

16. The apparatus of claim 12 also including ports connected to carry timing and flow-state signals between the sensing circuit and a control circuit of the engine.

17. A marine engine comprising

moving parts arranged to be lubricated by oil delivered through a supply line from a supply of oil,

a pump configured to pump oil from the supply to the moving parts in pulses controlled by a controller, and

a sensor connected to receive pulses of the oil and to detect the oil flow state of the engine using a temperature sensitive electronic element and a circuit that analyzes an electrical parameter of the temperature sensitive element at times based on the pulses of the oil.

18. The engine of claim 16 in which the temperature sensitive electronic element comprises a thermistor.

19. The engine of claim 16 in which the circuit includes an electrical interface to a controller that controls the timing of the pulses.

20. A method comprising

passing an electrical current through a thermo-electric sensor to raise its temperature above the temperature of a non-conductive or high resistance fluid flowing in pulses past the sensor,

measuring a change in temperature of the thermo-electric sensor occurring with respect to one or more of the pulses,

determining a level of fluid flow corresponding to the measured change in temperature, and

issuing a signal based on the determined flow level.

21. The method of claim 20 in which the thermo-electric sensor comprises a thermistor.